Elk Neck State Park

Park Quest

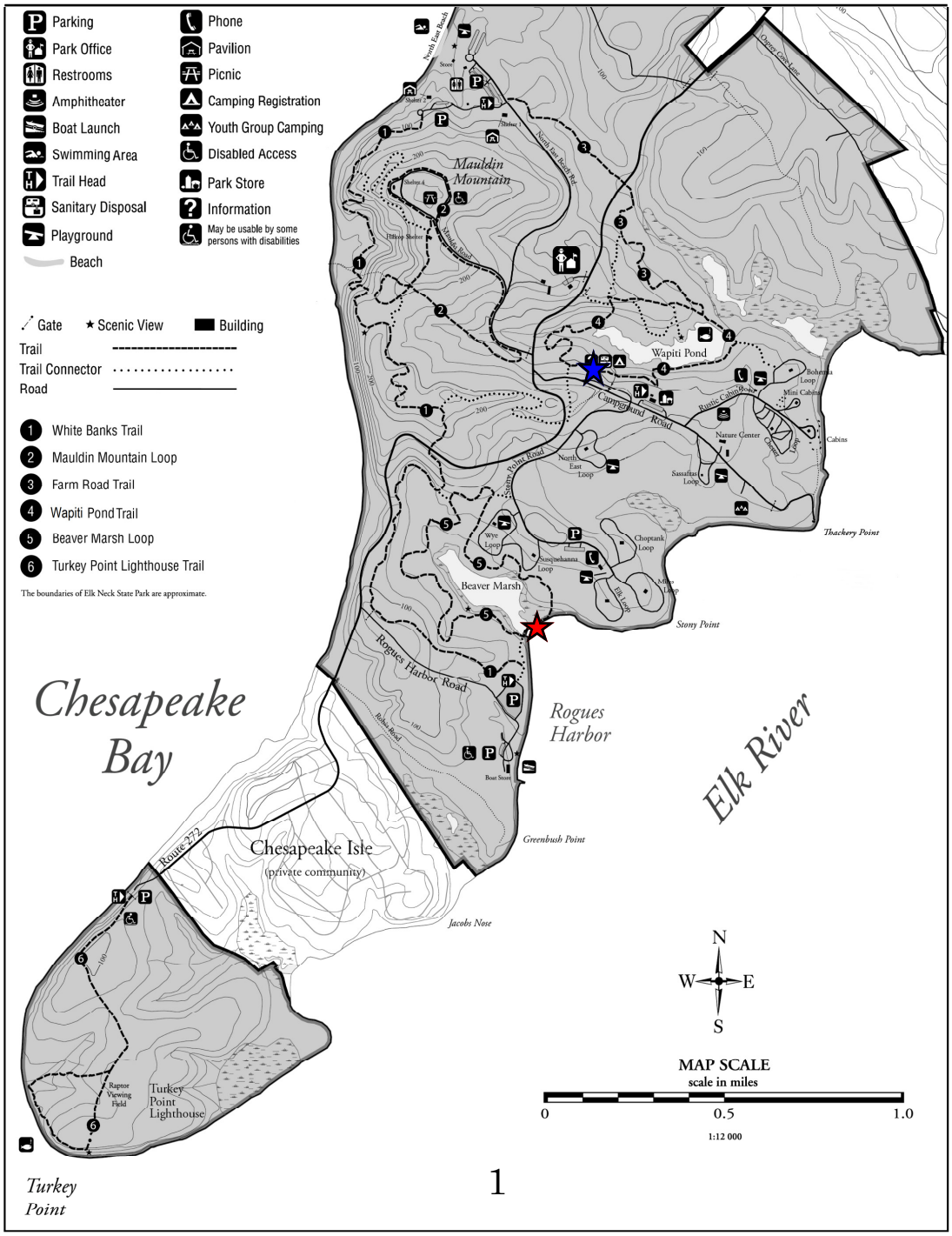
Be Aware of the Elk River!

2017

Elk Neck State Park

Welcome to Elk Neck State Park! Your quest will be on the sandy portion of the Beaver Marsh Loop Hiking Trail accessible from either the Elk River Campground or the Rogues Harbor Boat Launch. Instructions will be provided to the Elk River Campground starting location. To get there, leave the Camper Registration building by making your first right turn. Follow the signs to the St. Martin's Loop parking lot. Follow the posted Park Quest signs to the trail head and continue to the sandy portion of the loop.

Be sure to have your passport ready to show the attendants at the contact stations. Enjoy!



PARK QUEST

Be Aware of the Elk River!

Directions

1. Read the introduction page of your guide (page 3). It will introduce you to your quest.
2. Travel to the St. Martin's Loop, park, and head towards the Beaver Marsh Loop hiking trail.
3. Using this workbook, examine the effects of a hurricane through six (6) different people's views. Each person's view has a corresponding section in this guide. Read and complete each before moving on to the next.
4. Once you have completed all of the sections, return your Quest Pack to the Camper Registration building on Campground Road to get your passport stamped.

Congratulations!!

Hope you enjoyed your quest!

Welcome to Elk Neck State Park!
'Be Aware of the Elk River!'
2017

Your quest here at the Beaver Marsh Loop hiking trail in Elk Neck State Park is to explore how hurricanes change the area through the eyes of a storm tracker, town builder, park ranger, meteorologist, news anchor, and homeowner. Once completed, you will need to return to the Camper Registration building on Campground Road in order to return the Quest Pack and collect your stamp. The staff at Elk Neck State Park invites you to stay and enjoy the day in the park!

To begin your Quest you will need your Quest Pack, which contains the following:

Park Quest Workbook
Folder with copies of the Emergency Preparedness Worksheet
Composition Notebook
Crayons
Pencil or Pen
Sand Toys, Bucket, Sifter, Three Molds, and Two Shovels/ Rakes

Remember to grab your own drinking water, sunscreen, and camera!

Good luck!

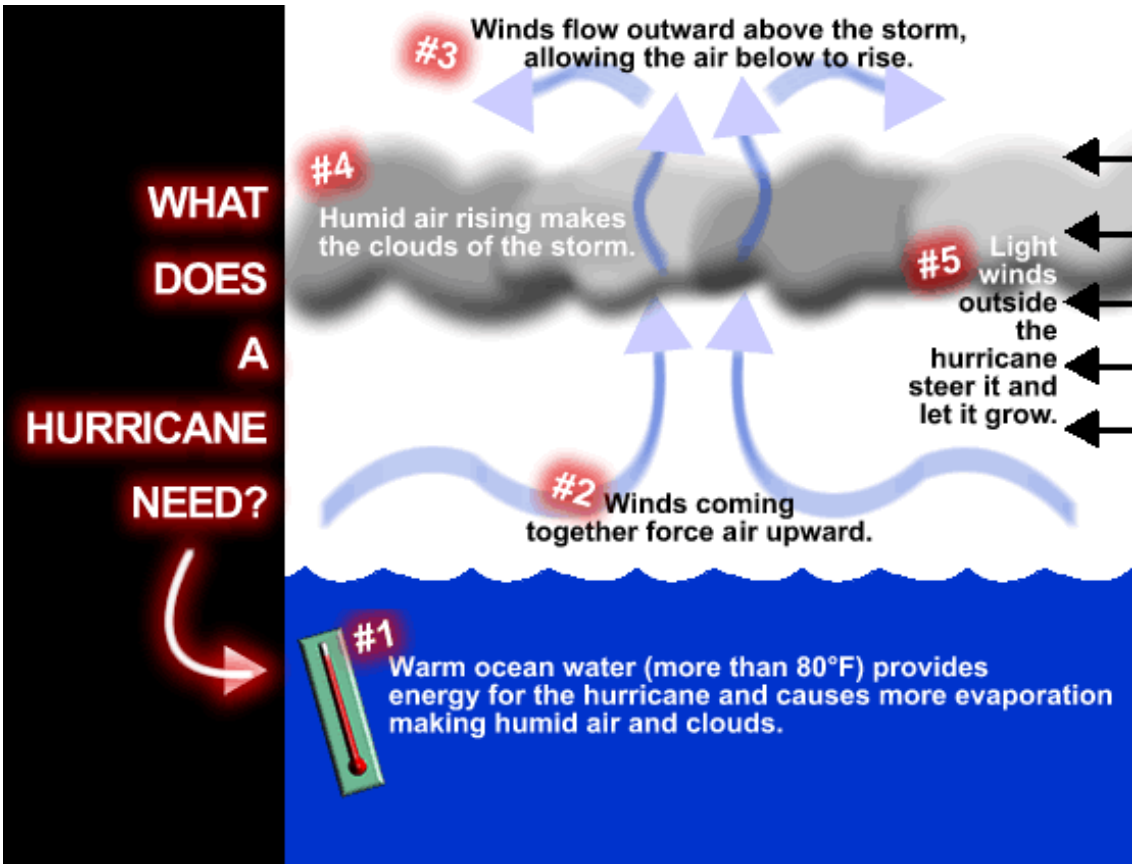
Use this guidebook to help you along your quest.
Don't forget to follow us on Twitter and post your pictures @elknecksp

What is a Hurricane?

You have probably heard the word 'hurricane' before. Do you know what a hurricane is? What does it make you think of? How does it make you feel?

A hurricane is a storm with wind gusts greater than 74 miles per hour. That is faster than your parents drive on the highway!

HOW IS A HURRICANE MADE?



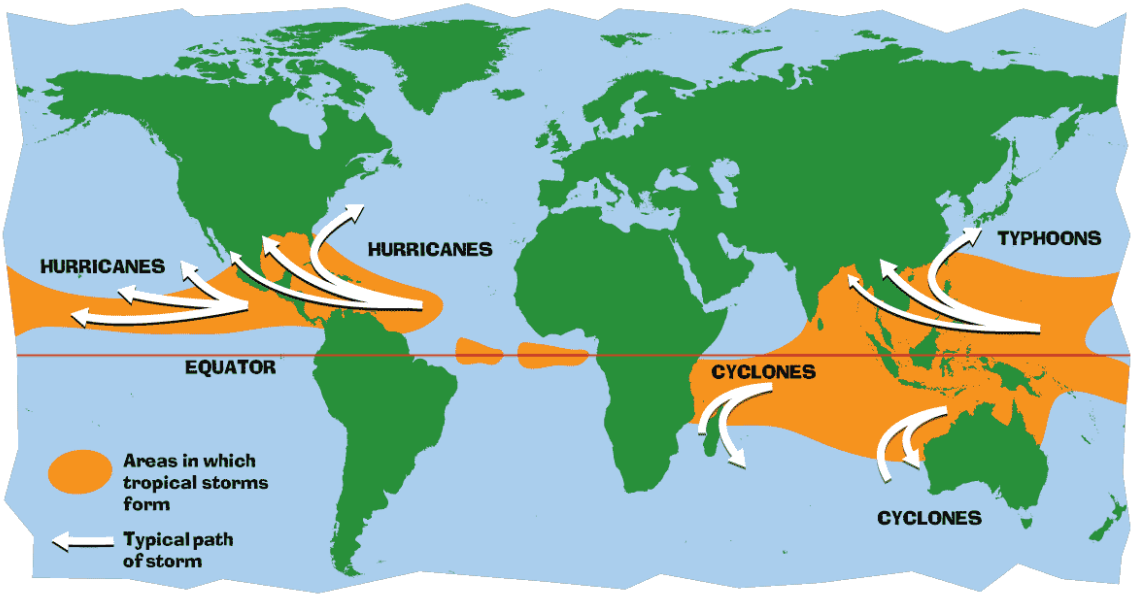
WHEN AND WHY DO HURRICANES FORM?

For those of us who live near the Atlantic Ocean, hurricane season is from June 1 to November 30, but most of our hurricanes form during the Fall. If you think about it, it makes a lot of sense that hurricanes would form in the Fall. Remember the #1 thing a hurricane needs to form is warm water. During the early part of Fall the ocean is at its warmest, because it's been soaking up the hot sun all summer long.

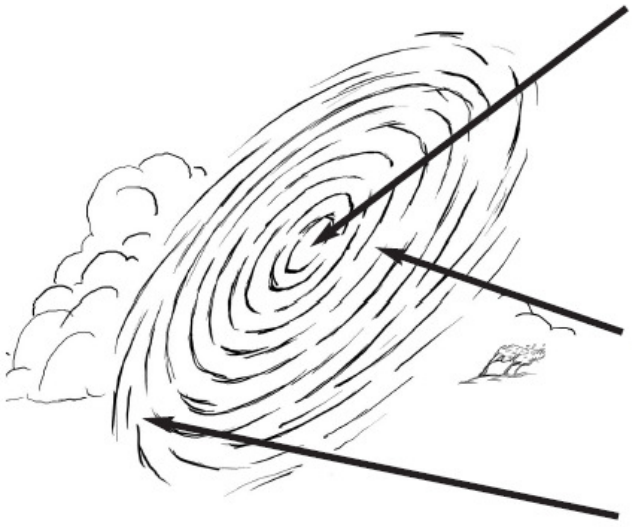
Hurricanes, although not good for people, are great for the earth! Hurricanes, and other storms, help regulate the temperature of the earth by sending hot air and evaporated water from the earth's surface up into the much cooler atmosphere where it cools and condenses into storm clouds. It is the movement of the wind up in the atmosphere that determines if these clouds will turn into a mild thunderstorm or a severe hurricane.

WHERE ARE HURRICANES FOUND?

Hurricanes are formed over any ocean all across the world, however, different regions call these very strong storms different names.



WHAT DOES A HURRICANE LOOK LIKE?



Hurricane Eye
A region that can be as large as 30 miles (48 kilometers) in diameter found at the center of a hurricane, where skies are often clear and winds are light. The storm's lowest pressure readings are found here.

Eye Wall
A "wall" of clouds and intense thunderstorms that surround the eye.

Spiral Rain Bands
Bands of thunderstorms that wrap around the hurricane.

HOW IS A HURRICANE NAMED?

There are six lists of hurricane names that rotate every year. Each is made up of alternating girl and boy names that are listed alphabetically. The first hurricane of the year has a name that starts with the letter 'A', the second hurricane of the year has a name that starts with the letter 'B', and so on. The lists stay the same and will repeat every sixth year. A name is retired or removed from a list if the hurricane caused a lot of damage. Examples of retired hurricane names include: Katrina, Irene, and Sandy.

Hurricane Vs. Storm Tracker

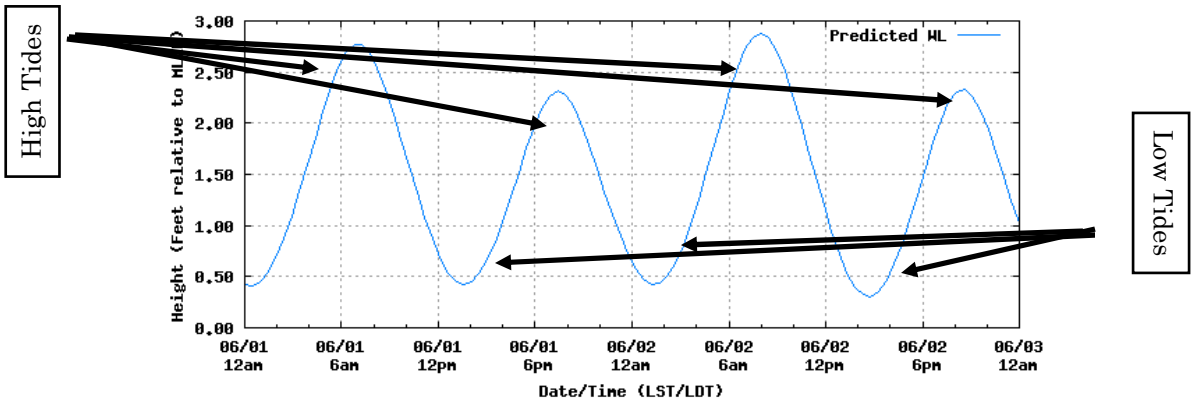
You should have already considered the tide activity below prior to arriving to the park to learn more about the considerations a storm tracker has to take when assessing a storm.

As you just learned, storms are not formed in any one specific location and the Earth's climate determines where and when storms are formed. Climate also determines the direction of the storm and the path it takes. How do you think scientists determine when and where a storm will form and what path it will take? Once a storm is on one path do you think its path can change?

Storm trackers use weather patterns and climate information to determine when storms are forming and where they are heading. Wind, pressure systems, and temperature are just some of the factors that storm trackers need to consider when trying to figure out where a storm will end up. Because these factors change every day (even sometimes every hour!) tracking a storm is a difficult task and constantly changing.

The area of the Beaver Marsh Loop hiking trail where you are located has some factors that effect its sandy beach area. The Elk River is a tidal water body which means that the water level rises and recedes multiple times throughout the day. Storm trackers (and your team) need to research well in advance of storm systems to determine their paths so they can alert those that will be affected. To succeed in your quest, you will need to plan properly before heading to Elk Neck State Park to make sure the tide will be low or receding to have access to the sandy portion of the trail. The National Oceanic and Atmospheric Administration (NOAA) tracks, records, and predicts tides using thousands of remote sensing meters at various locations along our waterways and puts that information into what are called **Tide Charts**. Here: https://tidesandcurrents.noaa.gov/tide_predictions.html you will find the locations of those sensors and you can explore what different tides look like. The "Town Point Wharf, MD" station on the Elk River will give you the most accurate information regarding the Beaver Marsh Loop. Below is a sample tide chart and arrows pointing out examples of low tides.

What time is low tide while you are visiting the park?



Hurricane Vs. Town Builder

Complete the activities below to learn more about the considerations a builder has to think about when constructing a town near the water.

CONGRATULATIONS! Your Park Quest team has just won ONE BILLION DOLLARS! With this ONE BILLION DOLLARS you must build a town located on the Elk River in North East, Maryland. Before you start building, consider the following:

1. Your town's property sits on the Elk River, a tributary to the Chesapeake Bay. Do you think your town is at risk for flooding? As the builder, what precautions could you take to prevent flooding?

2. What will you name your town?

3. What kinds of things will you need in your town? Where will people live? Where will they find food and water? Where will they have fun? Where will they learn?

DIRECTIONS:

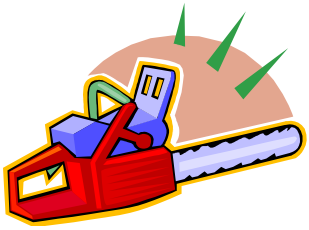
1. Using the sand toys located in your Quest Pack, create your town on the sandy portion of the Beaver Marsh Loop. It should be no more than five feet long and five feet wide.
2. Examine your completed town. Do you think it is safe from flooding?
3. Pretend you are the Elk River and try the following experiment! Fill up the sand bucket with water from the river. Stand five big steps away from your town. On the count of three, try to throw the water from the bucket onto your town. Did the water hit the town? Did the town sustain any damage?
4. Refill the bucket again. Stand three big steps from your town. Try the experiment again.
5. Refill the bucket one last time. Stand one big step from your town. Try the experiment on more time.
6. What happened the closer you got to your town? Was more damage sustained when you were fives steps away or one step away. Do you think the same is true about the river? Would more damage be sustained by waves created by a hurricane if the Elk River was 100 feet away or 500 feet away?

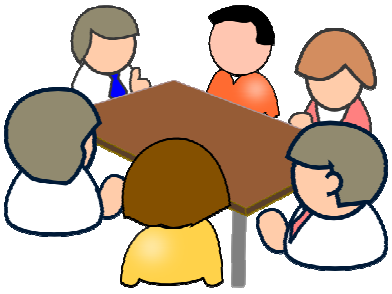
Hurricane Vs. Park Ranger

Complete the activities below to learn more about the procedures a Park Ranger may have to complete in order to prepare for a hurricane.

You are a Park Ranger who just started working at Elk Neck State Park. You have been tasked with making a plan in the event of a hurricane. You decide you need three different types of to-do lists, one for before, during, and after a hurricane. Try to name at least one thing you would add to each of your lists for all of the areas of the park listed below. Use the pictures at the bottom of the page to help you.

Beach	Store
Playground	Picnic Areas
Bathhouses	Boat Launch
Trees in the Area	





Hurricane Vs. Meteorologist

Complete the activities below to learn more about the important predictions meteorologists have to make when monitoring a hurricane.

Now pretend you are a meteorologist sent to track an approaching hurricane. From your extensive training, you know the following:

Tropical Storm = The area may experience tropical storm conditions with sustained winds from 39– 73 mph within the next 36 hours.

Hurricane = The area may experience hurricane conditions with sustained winds greater than 73 mph within the next 36 hours.

Using the information below, predict which type of storm (tropical storm or hurricane) each area is experiencing.

Area	Wind Speed (mph)
Area 1	23
Area 2	57
Area 3	70
Area 4	90
Area 5	115

Are any of the areas experiencing hurricane conditions?

Examine the chart below. This chart reflects information found on the Saffir-Simpson Hurricane Scale. The scale was developed to help meteorologists rate a hurricane's intensity.

Category	Sustained Winds (mph)	Damage
1	74-95	Minimal
2	96-110	Moderate
3	111-130	Extensive
4	131-155	Extreme
5	>155	Catastrophic

Oh no! The town you built is inside Area 5's boundaries! Better send this information to the local news station. But first, this hurricane needs a name. Think about what you learned earlier. Hurricanes are named using first names. Because this hurricane is the first of the season, give it a name starting with the letter 'A'.

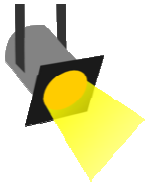
Hurricane Vs. News Anchor

Complete the activities below to learn more about reporting important information to people recovering from a hurricane.

CONGRATULATIONS! You've been promoted to Lead News Anchor for PQ17, Park Quest News television station. Your broadcasting area was recently impacted by a Category 3 hurricane. It is up to you to report all of the damage!

Using the facts below, develop and deliver a live-action news report on the hurricane. Your news report should include:

- The name of the town you built earlier.
- The name of the hurricane you studied as a meteorologist.
- Interview with the town mayor detailing the hurricane's effects on the community.
- Interview with a homeowner whose personal property was damaged.
- Storm overview from the meteorologist.
- And most importantly, *BE CREATIVE*!



FACTS ABOUT THE STORM:

1. The winds reached 115 mph. The storm surge was 9 feet and 5.4 inches of rain fell.
2. Approximately 25,000 people lost power due to the high wind and heavy rain.
3. Reported damage: one home destroyed, five homes severely damaged, and seven homes moderately damaged. The total amount of damage is estimated at $7 million.
4. Due to flooding, Quest Mount Road remains closed.

Hurricane Vs. Homeowner

Complete the activities below to learn more about how you and your family can be more prepared during a hurricane or other emergency.

Think you know what to do to be prepared for an emergency? Sing the following song to learn three very important steps in planning for an emergency.

Sung to the tune of "She'll Be Comin' Round the Mountain"

Adapted from A children's National Preparedness Month song written by teachers and students of Parks Elementary School in Oklahoma City, Oklahoma.

Oh yeah, right now is the time to get prepared
For emergencies at home or anywhere
So now get your act together
Be prepared for stormy weather.
Oh yeah, right now is the time to get prepared

Know some basic stuff goes in your disaster kit,
So be sure to make a list and don't forget
Make your family plans together
Be prepared for any weather
Oh yeah, right now is the time to get prepared

You need tools and food and water for 3 days.
Also, radio, flashlight batteries for your stay.
Grab your first aid kit and some clothes to wear.
Don't forget your underwear!
Oh yeah, right now is the time to get prepared

Oh yeah, right now is the time to get prepared
You will know just what to do and not be scared.
So let's get our kits together
We're prepared for stormy weather
Oh yeah, right now is the time to be prepared

Did you catch the three steps to emergency preparedness? To be prepared for any emergency you need to:

Know the Risk

Make a Plan

Get a Kit

Think about your home. What risks should you be aware of? Do you have an emergency kit? Do you have an emergency plan?

If not, take one of the Emergency Preparedness Plan worksheets from your Quest Pack. You may complete it now or fill it out later at home. A copy of this worksheet can also be printed from Elk Neck's Park Quest webpage.